

WAGON ROAD FROM NIOBRARA TO VIRGINIA CITY.

LETTER

FROM THE

SECRETARY OF THE INTERIOR,

IN ANSWER TO

*A resolution of the House of February 16, relative to a wagon road from
Niobrara to Virginia City.*

MARCH 5, 1866.—Laid on the table and ordered to be printed.

DEPARTMENT OF THE INTERIOR,

Washington, D. C., March 2, 1866.

SIR: I have the honor to acknowledge the receipt of the following resolution of the House of Representatives, dated February 16, 1866:

“*Resolved*, That the Secretary of the Interior be directed to communicate to the House of Representatives the report of Colonel James A. Sawyer, superintendent of the wagon road from Niobrara to Virginia City, (made in 1865;) of his explorations, survey, and location of said road; and also the report of W. W. Brookings, superintendent of the wagon road from the western line of Minnesota to Montana, showing his exploration and surveys.”

In compliance with said resolution I have the honor to enclose herewith a copy of the report of Colonel James A. Sawyer on the Niobrara and Virginia City wagon road, dated 19th January, 1866.

The report of W. W. Brookings, esq., on the wagon road from the western boundary of Minnesota to the vicinity of the mouth of the Big Cheyenne river, dated November 1, 1865, referred to in the above resolution, will be found in the printed report of Lieutenant Colonel James H. Simpson, corps of engineers, page 124, herewith enclosed. A copy of the manuscript report of Mr. Brookings's engineer, Geo. N. Propper, dated October 31, 1865, is also enclosed.

I am, sir, very respectfully, your obedient servant,

JAS. HARLAN,
Secretary of the Interior.

Hon. SCHUYLER COLFAX,
Speaker of the House of Representatives.

YANKTON, DAKOTA, *October 31, 1865.*

SIR: I have the honor to present herewith my report of the survey and construction of the Big Cheyenne and Minnesota wagon road, with accompanying field and descriptive notes, with map of the road.

Owing to the inability, on account of lack of military protection, to proceed

with a survey, as intended, of a route from a point at or near the mouth of the Big Cheyenne river west to Powder river, there to connect with the Niobrara and Virginia City wagon road, and having examined the country as far west as the forks of the Big Cheyenne river, it was deemed advisable to commence the survey of the Minnesota road. I therefore commenced, at a point directly opposite the mouth of the Big Cheyenne, on the bank of the Missouri river, an examination of the country for a line of road as nearly east as practicable, consistent with the character of the country, desiring to strike the western boundary line of the State of Minnesota at or near the forty-fourth parallel of north latitude. I found that a road line could not run directly east, on account of the great difficulty of making an ascent of the bluffs from the bottom lands on the Missouri river, the bluffs having at this point an average height of two hundred and fifty feet. For this reason, and the fact that an east line would cross the high Missouri prairies so far above any stream of water that empties into the Missouri river from the east, that water would be exceedingly scarce and very poor, and one section would be entirely destitute for forty miles, and one section of eighty miles without wood, therefore, the object of the government being the establishment of a route of the greatest utility to the emigrant and traveller, and your positive injunctions "to make the very best road for the purposes for which the appropriation was made," I ran in a southeast direction, crossing the Oh-kee-bo-zhee eighteen miles and ten chains from the Missouri. Here is plenty of water, grass, and timber.

The bottom land on the Missouri, amounting to probably ten thousand acres, at the point from where we started, being in a big bend, is of the very best quality, one-third of it being timber, of which cottonwood and ash predominate. After ascending the bluffs, the character of the country is nearly alike, being high, gently rolling prairie, covered with a growth of short, fine grass, which is very nutritious, making it a fine grazing country, though from its being too dry, very little rain falling, it is unfit for agriculture.

The bluffs on this stream are nearly as high as those on the Missouri, the water standing nearly on a level with the river; therefore a line of road must necessarily be crooked, accommodating itself to some of the many ravines, for ascent or descent, to and from the high prairie.

I extended the line to a point twenty-nine miles and forty-one chains from the mouth of the Big Cheyenne river and opposite, though one mile above old Fort Pierre, when I ran a line to the Missouri river, finding a fine roadway down the bluffs to the Missouri, and also a good point for making a crossing. This I have termed Camp Johnson, and am of opinion that the Big Cheyenne and Minnesota road should cross here, it being a better point, the roads upon both sides being better, having more water and timber, and can be built at less cost.

I ran the road in the most direct line from this point (Camp Johnson) to the Crow Creek agency, crossing Medicine Knoll river, two branches of the Chappelle creek, Chaine De Roche, and Deep Holes, all of which afford water in abundance. Medicine Knoll river and Chappelle creek having timber.

The distance from Camp Johnson to the Crow Creek agency being over a rolling prairie country, well adapted to stock grazing and sheep husbandry. This region of country will, in my opinion, be of great value in time for its minerals, iron ore of good quality being abundant and easily obtained.

From the Crow Creek agency the road lines bear north of east, this was necessary in order to get timber and water and avoid the abrupt ridges and deep ravines that break south into the Crow River valley, and in all cases where the line bears north or south of the main line east it is done to improve the route and avoid unnecessary expense, without increasing, materially, the distance.

The main streams crossed on the route are Elm creek, Sandy Hill creek, James river, and the Vermillion and Big Sioux rivers, though there are many other important watering places.

The timber is at Campbell's creek, Elm creek, Wessington springs, James river, and the Big Sioux river, and at Lake Harlan.

The country improves as we leave the Missouri river, though good grazing is found the entire distance. At Wessington springs there is much good agricultural land, also on James or Dakota river, and in the valley of the Vermillion; but from Lake Harlan to the State line it is the finest agricultural and grazing country in the west, and as soon as we shall be at peace with the Indians will be cultivated, this road being the outlet to the Missouri river markets.

Having passed over the country, making in some instances several lines, I was well prepared to retrace the route to the Missouri and mark and establish the road over the very best route, which I believe has been done. The mode of marking was to plant every half mile, where the surface of the country was not such as to hide the monument, a stake four feet long, flattened on two sides near the top, and the letters M. W. R. cut in with a marking iron, then build a monument of earth or stone around it. Mounds of earth or stone are built between the stations where the nature of the country requires it. Several miles of these stations can often be seen at a view.

The annexed table will show the camps with distances, commencing at the eighty-eighth mile post on the western boundary line of the State of Minnesota.

The field-notes, also annexed, will give the stations, courses, and distances, and sufficiently describe the surface of the country.

The manner of building fords across the various streams and wet places is in all cases the same. Two rows of large boulders were placed across the stream, twenty-four feet apart. The space between the rows being the road-bed, was then filled with smaller stone and well packed until the road-bed became a solid pavement, then covered with earth and gravel to make them smooth.

These will not settle so as to do them great injury, if any, and where the streams are high, as is often the case, the road will be submerged by the overflow, but cannot be destroyed, as would be the case with bridges; and as timber is not found at most of the points where fords are built, the cost of preparing and drawing timber would be very great, while the bridges would not be as permanent or as good.

Monuments are in all cases erected upon each side of the stream and upon each side of the road, so as to sufficiently define the roadway, even though covered with water.

The banks of all streams and the bluffs are ploughed, scraped, and graded down to good roads.

Your obedient servant,

GEO. N. PROPPER, *Surveyor and Engineer.*

Camps and distances.

Camps.	Miles.	Chains.	Links.	Remarks.
State line to Big Sioux river, over a gently rolling prairie.	7	57	77	Here the banks were ploughed, scraped, and graded down, and the large rock taken out of the roadway. Plenty of timber.
From Big Sioux to Larson's creek ..	19	75	67	The banks are graded down. The stone taken from the road-bed the entire distance. Water; no wood.
Larson's creek to Lake Harlan	12	56	75	The stone are all removed from the road, and a stone ford paved at the inlet. Timber plenty.
Lake Harlan to east bank of Vermillion.	8	29	22	The stone are removed from road-bed, and the banks of the stream graded. Good water and wood.

Camps and distances—Continued.

Camps.	Miles.	Chains.	Links.	Remarks.
East to west branch of Vermillion ..	16	06	50	Stone all removed from road, banks graded down, and stone ford built. Good water; no wood.
West Vermillion to James river	22	45	25	Stone removed from road, bluffs and banks of river graded down, and stone ford. Plenty of timber.
James river to Sandy Hill creek	2	64	10	Stone removed from road, and ford made. Water and wood.
Sandy Hill creek to Wessington springs.	21	56	77	Stone removed from road; hill graded. Plenty of water and timber.
Wessington springs to Prickly Pear creek.	16	76	60	Stone removed from road, hills graded, and crossing paved. Good water; no wood.
Prickly Pear to Sulphur springs....	5	09	82	Stone removed from road, branches graded, and good crossings made. Corduroy bridge built here two hundred feet long, covered with earth and gravel. Good water; no wood.
Sulphur springs to Elm creek	7	56	27	Branches all graded, stone all removed from road, bluffs graded down, and good ford made. Plenty of water and timber.
Elm creek to Campbell's creek	11	64	13	Stone all removed from road. Water and timber.
Campbell's creek to Crow Creek agency.	3	40	12	Stone removed from road, banks of creek graded.
Miles of road constructed	156	70	00	
<i>Surveyed but not sufficiently marked and established, and no work done on construction.</i>				
Crow Creek agency to Deep Holes ..	14	20	00	Plenty of water; no wood.
Deep Holes to Chaine de Roche	4	01	60	Plenty of water; brush for camp-fires.
Chaine de Roche to east branch of Chappelle creek.	7	60	60	Plenty of water; no wood.
East branch to Chappelle creek	6	65	00	Plenty of water and wood.
Chappelle creek to Medicine Knoll river.	13	46	40	Plenty of water and wood.
Medicine river to Camp Johnson, Missouri river.	21	32	60	
Camp Johnson to Oh-kee-bo-zhee...	11	39	00	Plenty of water and wood.
Oh-kee-bo-zhee to mouth of Big Chienne, Missouri river.	18	02	40	Plenty of timber.
Miles examined	97	27	00	
Crow Creek agency to Camp Johnson	67	66	60	
Minnesota boundary line to Camp Johnson	224	56	60	

Field and descriptive notes.

(Variation 12 degrees 30 minutes east.)

Station.	Course.	Chains.	Links.	Remarks.
1.....	West	65	.....	Eighty-eight miles; level prairie.
2.....	do	47	.....	Level prairie.
3.....	do	70	.....	Gently rolling prairie.
4.....	do	53	.....	Do.
5.....	do	28	.....	Level prairie
6.....	do	71	.....	Do.
7.....	do	40	.....	Rolling prairie.
8.....	do	51	.....	To edge of bluffs.
9.....	North, 50 degrees west.	32	77	Descending bluffs.
10.....	North, 70 degrees west.	70	.....	Level bench land.
11.....	do	45	.....	Into bottom; entire timber.
12.....	do	44	25	To bank of Sioux river.
13.....	do .....	.....	75	Across river.
14.....	West	55	78	Level bench land.
15.....	North, 50 degrees west.	45	65	Ascending from bench land.
16.....	North, 65 degrees west.	60	.....	Rolling prairie; heavy ravines southwest.
17.....	do	60	.....	Rolling rich prairie.
18.....	do	66	75	Do.
19.....	North, 88 degrees west.	40	.....	Level rich prairie.
20.....	do	50	.....	Do.
21.....	do	66	.....	Do.
22.....	West	50	.....	Do.
23.....	do	40	.....	Do.
24.....	do	40	.....	Do.
25.....	do	40	.....	Undulating rich prairie.
26.....	do	45	.....	Do.
27.....	do	25	.....	Do.
28.....	do	40	.....	Level rich prairie.
29.....	do	60	.....	Do.
30.....	do	60	.....	Hilly and stony prairie; lakes and timber lying south.
31.....	do	50	.....	Do.
32.....	do	70	.....	Rolling rich prairie.
33.....	do	40	.....	Level rich prairie.
34.....	do	40	.....	Do.
35.....	do	40	.....	Do.
36.....	do	60	.....	Do.
37.....	do	60	.....	Do.
38.....	do	60	.....	Do.
39.....	do	60	.....	Do.
40.....	do	60	.....	Do.
41.....	do	40	.....	Gently rolling rich prairie.
42.....	do	40	.....	Do.
43.....	do	60	.....	Do.
44.....	do	40	.....	Do.
45.....	do	31	50	To Larson's creek; prairie.
46.....	South, 68 degrees west.	40	.....	Level prairie.
47.....	do	40	.....	Do.
48.....	do	40	.....	Gently rolling prairie.
49.....	do	40	.....	Do.
50.....	do	40	.....	Do.
51.....	do	40	.....	Do.
52.....	do	40	.....	Do.
53.....	do	40	.....	Do.
54.....	do	40	.....	Do.
55.....	do	60	.....	Do.
56.....	do	60	.....	Hilly and stony prairie.
57.....	do	40	.....	Do.
58.....	do	40	.....	Rolling prairie.

Field and descriptive notes—Continued.

Station.	Course.	Chains.	Links.	Remarks.
59.....	South, 68 degrees west.	40	.....	Rolling prairie.
60.....	do.....	40	.....	Level prairie.
61.....	do.....	40	.....	Do.
62.....	do.....	40	.....	Do.
63.....	do.....	60	.....	Do.
64.....	do.....	60	.....	Rolling. See Lake Harlan.
65.....	do.....	50	.....	Rolling prairie.
66.....	do.....	40	.....	Do.
67.....	do.....	40	.....	Level prairie.
68.....	do.....	46	75	Prairie on bank of lake.
69.....	South, 85 degrees west.	20	.....	Hilly and stony prairie.
70.....	do.....	25	.....	Do.
71.....	do.....	30	.....	Do.
72.....	do.....	45	.....	Rolling prairie.
73.....	do.....	40	.....	Do.
74.....	do.....	40	.....	Do.
75.....	do.....	40	.....	Do.
76.....	do.....	60	.....	Gently rolling prairie.
77.....	do.....	60	.....	Do.
78.....	do.....	60	.....	Do.
79.....	do.....	60	.....	Do.
80.....	do.....	40	.....	Do.
81.....	do.....	40	.....	Rolling prairie.
82.....	do.....	40	.....	Rolling stony prairie.
83.....	do.....	40	.....	Do.
84.....	do.....	20	20	Valley land to Vermillion.
85.....	North, 87 degrees west.	40	.....	Rolling prairie.
86.....	do.....	40	.....	Do.
87.....	do.....	40	.....	Do.
88.....	do.....	40	.....	Do.
89.....	do.....	60	.....	Level prairie.
90.....	do.....	60	.....	Do.
91.....	do.....	60	.....	Undulating prairie.
92.....	do.....	60	.....	Do.
93.....	do.....	60	.....	Gently rolling prairie.
94.....	do.....	60	.....	Do.
95.....	do.....	60	.....	Do.
96.....	do.....	60	.....	Do.
97.....	do.....	60	.....	Do.
98.....	do.....	60	.....	Do.
99.....	do.....	17	75	Water-course runs south.
100.....	do.....	22	25	Gently rolling prairie.
101.....	do.....	60	.....	Do.
102.....	do.....	60	.....	Do.
103.....	do.....	60	.....	Do.
104.....	do.....	60	.....	Level prairie.
105.....	do.....	60	.....	Do.
106.....	do.....	60	.....	Do.
107.....	do.....	40	.....	Do.
108.....	do.....	40	.....	Rolling prairie.
109.....	do.....	46	50	West branch of Vermillion.
110.....	do.....	40	.....	Rolling prairie.
111.....	do.....	40	.....	Do.
112.....	do.....	40	.....	Level prairie.
113.....	do.....	40	.....	Do.
114.....	do.....	40	.....	Rolling prairie.
115.....	do.....	40	.....	Rolling stony prairie.
116.....	do.....	40	.....	Do.
117.....	do.....	40	.....	Level prairie.
118.....	do.....	40	.....	Do.
119.....	do.....	40	.....	Do.

Field and descriptive notes—Continued.

Station.	Course.	Chains.	Links.	Remarks.
120.	North, 87 degrees west.	40	.....	Rolling prairie.
121.	do.	40	.....	Do.
122.	do.	40	.....	Do.
123.	do.	40	.....	Do.
124.	do.	40	.....	Do.
125.	do.	40	.....	Hilly stony prairie.
126.	do.	24	.....	Hilly and stony prairie.
127.	West	40	.....	Rolling prairie.
128.	do.	40	.....	Level prairie.
129.	do.	40	.....	Do.
130.	do.	40	.....	Do.
131.	do.	40	.....	Rolling prairie.
132.	do.	40	.....	Do.
133.	do.	50	.....	Hilly. (See Wessington springs.)
134.	South, 85 degrees west.	40	.....	Rolling prairie.
135.	do.	40	.....	Do.
136.	do.	40	.....	Do.
137.	do.	50	.....	Level prairie.
138.	do.	40	.....	Do.
139.	do.	46	.....	Rolling stony prairie.
140.	North, 70 degrees west.	40	.....	Do.
141.	do.	40	.....	Do.
142.	do.	40	.....	Do.
143.	do.	40	.....	Do.
144.	do.	40	.....	Do.
145.	do.	40	.....	Level prairie.
146.	do.	40	.....	Do.
147.	do.	40	.....	Rolling prairie.
148.	do.	40	.....	Do.
149.	do.	40	.....	Gently rolling prairie.
150.	do.	40	.....	Do.
151.	do.	40	.....	Rolling prairie.
152.	do.	40	.....	Do.
153.	do.	40	.....	Go into bottom land.
154.	do.	34	85	Dakota river.
155.	do. ....	.....	40	Across river.
156.	South, 80 degrees west.	27	.....	Up bluffs.
157.	North, 87 degrees west.	40	.....	Gently rolling prairie.
158.	do.	40	.....	Do.
159.	do.	40	.....	Do.
160.	do.	40	.....	Do.
161.	do.	37	10	Sandy Hill creek.
162.	North, 85 degrees west.	40	.....	Rolling prairie; red sand.
163.	do.	40	.....	Do.
164.	do.	40	.....	Level, good prairie.
165.	do.	40	.....	Do.
166.	do.	40	.....	Do.
167.	do.	40	.....	Do.
168.	do.	40	.....	Do.
169.	do.	40	.....	Do.
170.	do.	40	.....	Do.
171.	do.	40	.....	Do.
172.	do.	40	.....	Do.
173.	do.	40	.....	Do.
174.	do.	40	.....	Do.
175.	do.	40	.....	Do.
176.	do.	40	.....	Do.
177.	do.	40	.....	Do.
178.	do.	40	.....	Do.
179.	do.	40	.....	Do.
180.	do.	40	.....	Do.
181.	do.	40	.....	Do.

Field and descriptive notes—Continued.

Station.	Course.	Chains.	Links.	Remarks.
182.....	North, 85 degrees west.	40	.....	Gently rolling prairie.
183.....	do.....	40	.....	Do.
184.....	do.....	40	.....	Do.
185.....	do.....	40	.....	Do.
186.....	do.....	40	.....	Level prairie.
187.....	do.....	40	.....	Do.
188.....	do.....	40	.....	Do.
189.....	do.....	40	.....	Rolling stony prairie.
190.....	South, 87 degrees west.	40	.....	Do.
191.....	do.....	40	.....	Level prairie.
192.....	do.....	40	.....	Do.
193.....	do.....	40	.....	Do.
194.....	do.....	40	.....	Do.
195.....	do.....	40	.....	Rolling prairie.
196.....	do.....	40	.....	Bed of stream, course south.
197.....	do.....	40	.....	Level prairie.
198.....	do.....	40	.....	Do.
199.....	do.....	40	.....	Do.
200.....	do.....	40	.....	Do.
201.....	do.....	40	.....	Do.
202.....	do.....	40	.....	Do.
203.....	do.....	40	.....	Gently rolling prairie.
204.....	do.....	56	77	Gently rolling; Wessington springs.
205.....	South, 65 degrees west.	32	.....	Ascending bluffs.
206.....	South, 85 degrees west.	40	.....	Rolling and stony prairie.
207.....	do.....	40	.....	Do.
208.....	do.....	40	.....	Do.
209.....	do.....	40	.....	Rolling and stony prairie; lake lying south.
210.....	do.....	43	.....	Rolling and stony prairie.
211.....	North, 60 degrees west.	10	.....	Do.
212.....	West.....	40	.....	Do.
213.....	do.....	40	.....	Do.
214.....	do.....	40	.....	Do.
215.....	do.....	40	.....	Do.
216.....	do.....	40	.....	Do.
217.....	do.....	40	.....	Rolling prairie.
218.....	do.....	40	.....	Do.
219.....	do.....	37	52	Stream runs south; tributary of Crow creek.
220.....	do.....	40	.....	Rolling prairie.
221.....	do.....	50	.....	Do.
222.....	do.....	30	.....	Do.
223.....	do.....	40	.....	Do.
224.....	do.....	55	.....	Do.
225.....	do.....	25	.....	Do.
226.....	do.....	40	.....	Do.
227.....	do.....	40	.....	Do.
228.....	do.....	38	.....	Stream runs south; tributary of Crow creek.
229.....	South, 85 degrees west.	40	.....	Rolling prairie.
230.....	do.....	40	.....	Do.
231.....	do.....	40	.....	Do.
232.....	do.....	40	.....	Do.
233.....	do.....	40	.....	Do.
234.....	do.....	40	.....	Do.
235.....	do.....	40	.....	Do.
236.....	do.....	40	.....	Do.
237.....	do.....	26	83	Hilly and stony.
238.....	North, 73 degrees west.	62	25	Do.
239.....	North, 55 degrees west.	27	.....	Prickly Creek stream; course south; tributary of Crow creek.
240.....	West.....	40	.....	Rolling prairie.
241.....	do.....	40	.....	Do.
242.....	do.....	44	50	Branch stream runs southeast to Crow creek.

Field and descriptive notes—Continued.

Station.	Course.	Chains.	Links.	Remarks.
243.....	South, 85 degrees west.	35	.....	Rolling prairie.
244.....	do.....	37	62	Branch stream runs south to Crow creek.
245.....	do.....	49	35	Rolling prairie.
246.....	do.....	40	.....	Do.
247.....	do.....	40	.....	Do.
248.....	do.....	40	.....	Do.
249.....	do.....	43	35	Sulphur Spring creek, south to Crow creek.
250.....	do.....	40	.....	Rolling prairie.
251.....	do.....	40	.....	Do.
252.....	do.....	38	27	Branch stream, southeast to Crow creek.
253.....	do.....	40	.....	Rolling prairie.
254.....	do.....	40	.....	Level prairie.
255.....	do.....	40	.....	Do.
256.....	do.....	40	.....	Do.
257.....	do.....	40	.....	Do.
258.....	do.....	40	.....	Rolling stony prairie.
259.....	do.....	40	.....	Do.
260.....	South, 78 degrees west.	40	.....	Do.
261.....	do.....	40	.....	Do.
262.....	do.....	25	.....	Do.
263.....	South, 65 degrees west.	40	.....	Do.
264.....	do.....	40	.....	Hilly and stony.
265.....	do.....	33	.....	Down bluffs to Elm creek.
266.....	do.....	40	.....	Across high bench land.
267.....	do.....	50	.....	To top of bluffs.
268.....	West.....	40	.....	Rolling prairie.
269.....	do.....	40	.....	Do.
270.....	do.....	40	.....	Do.
271.....	do.....	40	.....	Do.
272.....	do.....	40	.....	Do.
273.....	do.....	40	.....	Do.
274.....	do.....	40	.....	Do.
275.....	do.....	40	.....	Do.
276.....	do.....	40	.....	Do.
277.....	do.....	15	83	Creek courses south to Elm creek.
278.....	do.....	40	.....	Rolling prairie.
279.....	do.....	43	.....	Creek courses southeast to Elm creek.
280.....	South, 70 degrees west.	40	.....	Rolling prairie.
281.....	do.....	40	.....	Do.
282.....	do.....	25	80	Do.
283.....	do.....	40	.....	Level prairie.
284.....	do.....	40	.....	Do.
285.....	do.....	40	.....	Do.
286.....	do.....	40	.....	Rolling prairie.
287.....	do.....	40	.....	Do.
288.....	do.....	40	.....	Hilly and stony prairie.
289.....	do.....	49	50	Hilly to Campbell's creek.
290.....	South, 70 degrees west.	40	.....	Rolling prairie.
291.....	do.....	40	.....	Do.
292.....	do.....	40	.....	Do.
293.....	do.....	40	.....	Level prairie.
294.....	do.....	40	.....	Do.
295.....	do.....	40	.....	Rolling prairie.
296.....	do.....	40	.....	Crow Creek agency.

To Camp Johnson and mouth of Big Cheyenne river.

Stations and agency.	Courses.	Miles.	Chains.	Links.	Remarks.
1 to 2.	North, 40 degrees west.	6	60	----	Missouri river bench land.
2 to 3.	North, 15 degrees west.	7	40	----	Top of bluffs near Missouri river to Deep Holes. Water; no wood.
3 to 4.	North, 70 degrees west.	4	01	60	Chaine de Roche creek. Water; no wood; rolling.
4 to 5.	North, 70 degrees west.	6	60	60	Back Chappelle creek. No wood; rolling prairie.
5 to 6.	North, 55 degrees west.	6	60	----	Chappelle creek. Water and timber; rolling prairie.
6 to 7.	North, 80 degrees west.	13	46	40	Medicine Knoll river. Timber, good ford, and rolling prairie.
7 to 8.	North, 80 degrees west.	4	59	86	Gently rolling prairie.
8 to 9.	North, 74 degrees west.	2	47	50	Do.
9 to 10.	North, 80 degrees west.	4	31	75	From Sulphur springs rolling prairie.
10 to 11.	North, 80 degrees west.	5	22	----	Gently rolling prairie.
11 to 12.	South, 80 degrees west.	4	36	89	Camp Johnson, Missouri river; good point for crossing.
12 to 13.	North, 22 degrees west.	12	20	----	Oh-kee-bo-zhee. Water and timber; rolling prairie, high bluffs on stream, and stony.
13 to 14.	North, 55 degrees west.	10	----	----	Rolling prairie country.
14 to 15.	West	1	40	----	Do.
15 to 16.	North, 85 degrees west.	1	20	----	Going down Missouri bluffs about two hundred and fifty feet high, timber in ravines.
16 to 17.	West	4	41	40	Mouth of Big Cheyenne river, on opposite side of Missouri river, travelled over bottom land; partly timbered; mostly cottonwood; bottom subject to overflow.

I have the honor to be, very respectfully, your obedient servant,
 GEO. N. PROPPER,
Surveyor and Civil Engineer.

Hon. WILMOT W. BROOKINGS,
Sup't, Disbursing Agent, Minn. Wagon Road.

WASHINGTON, D. C., *January 19, 1866.*

SIR: Under instructions from your department dated March 14, 1865, I was appointed superintendent and disbursing officer of the wagon road to be surveyed and made under act of Congress approved March 3, 1865, from the mouth of the Niobrara river, in Nebraska Territory, to Virginia City, in Montana Territory, a branch from Omaha to intersect the main line at some point on the Niobrara river.

These instructions reached me on the last of March, and having filed my official bond and oath of office, I proceeded to organize and equip an outfit for the accomplishment of the object.

As the route I was ordered to examine and open up was to a great extent entirely unexplored, I deemed it proper to make ample preparations for going and returning, and decided to purchase supplies for six months with teams and transportation for the same, and all tools necessary for the construction of the road and the making of all bridges and fords over the streams that might have to be crossed on our route.

By arrangement, Hon. A. W. Hubbard exerted himself to procure from Major General Pope, commanding the department of the northwest, suitable escort for the expedition, to consist of at least 200 cavalry and two howitzers, and at the suggestion of Judge Hubbard, to hasten our preparations, N. C. Hudson, esq., was sent to Washington to arrange for remittance of funds to me at Chicago. On the 10th of April I received a telegram from Judge Hubbard that the escort was all right, and to meet him in Chicago to make final arrangements. On my arrival there I found no money to my credit, and was forced to proceed to Washington myself to examine the cause of the delay. After considerable delay in the Treasury Department, on the 27th of April funds were placed to my credit in Chicago, and I immediately commenced the purchase of the outfit.

After purchasing such supplies as I thought proper in Chicago I proceeded to Sioux City, and found to my surprise that, instead of any cavalry escort, two companies of the 5th United States volunteer infantry, consisting of only about 118 men in all, had been sent to the mouth of the Niobrara, with rations for only three months (including May,) and with scanty transportation.

I immediately telegraphed to General Pope, stating the facts as above set forth, and, in reply, he telegraphed to Brigadier General Sully, commanding that sub-district to furnish what he could. General Sully detailed for additional escort 25 men from company B, 1st battalion Dakota cavalry, and ordered his commissary to furnish rations sufficient to last the whole escort for six months, but he could furnish no transportation, which Captain Williford, the escort commander, finally was obliged to obtain by contract with Messrs. C. E. Hedges & Company, private freighters.

General Sully, at my solicitation, kindly furnished me with forty Springfield rifles, with equipments and ammunition for the same, which were distributed to the employés, and were of great service in guarding stock, &c.

I may here state that on my arrival at Virginia City I turned over these guns, equipments, and remaining ammunition, to General Meagher, the secretary and acting governor of Montana Territory, as I did not think it would pay the government to have them transported back again, and they were needed there.

Unavoidable delays in the transportation of subsistence and fitting out of teams, wagons, tents, camp equipage, &c., consumed much time; but after great exertions I finally completed all my arrangements and made ready for starting from Niobrara City, at the mouth of the Niobrara river, on the 13th of June.

The expedition proper consisted of 53 men, including my engineer and clerk, physician, guides, scouts, pioneers, herders, and drivers, 45 yokes of oxen, 5 saddle-horses, 5 mules, 15 wagons, with chains, tools, tents, camp equipage, and subsistence for six months. Our escort train numbered 25 wagons, drawn by six mules each. These teams were small and thin at starting, and very young, but few of them being over three years old, and, as a whole, a very inferior lot of animals, wholly inadequate for the expedition, and should never have been sent upon it.

Accompanying the expedition were five emigrant teams and a private freight train of thirty-six wagons, coupled together so as to be drawn by eighteen teams of six yoke of oxen each, and heavily loaded, some teams being loaded with 6,400 lbs.; and here permit me say that the entire practicability of the route travelled over may be seen when I state that not one of these wagons were uncoupled during the journey for the passage of any obstacle in the road.

It will be seen at a glance that the escort detailed for the expedition was wholly inadequate to protect a train of over eighty wagons passing through the heart of the most hostile Indian country in the Territories. It consisted of only 143 men; and as the train was marched mostly in one column, to form a permanent well-marked road, it could not protect the whole length from Indian assaults, and small parties of Indians could make dashes and be away before infantry could get within shooting distance of them. Some emigrants and some men,

whom I had hired, turned back and would not make the trip on account of the insufficiency of the escort.

The loading of wagons and arrangement of teams being concluded at noon on the 13th, we broke camp and started on our way at two p. m. A platoon of infantry with a howitzer marched in advance, then came the wagons belonging to the escort, then a platoon of infantry, then the wagons belonging to the expedition, then a platoon of infantry, then the emigrants and freight train, and finally a platoon of infantry with a howitzer brought up the rear; while the guides and pioneers kept in advance of the whole column, so as to have as little delay as possible at bad places, and scouts moved whenever it was proper and necessary.

At places where much work was required and the train obliged to stop, all hands took hold with a will, and the work finished up with despatch and in good manner.

Marched this day four miles, and camped on the south bank of the Niobrara, in the bottom. The grass, water, and wood at this camp were very good.

14th.—Paul Dorian, our Indian guide, who had left camp at Niobrara on the 11th instant, not making his appearance, I went to the Yankton agency in search of him, and found that he had deserted us and gone upon a hunt, notwithstanding his agreement to go with me, at a compensation of \$150 per month. I was sorry to lose his services, as he was called the best Indian guide in the country, though subject to sulky fits at times. I engaged in his place Baptiste Defond, a Yankton half-breed, who was recommended to me as a very good guide, and who served very faithfully as such till his discharge on the Big Horn river. My chief guide, Ben. F. Estes, went through with me to Virginia City and back, as I had agreed with him. He was in Lieutenant (now General) Warren's party in 1856, and with us proved himself to combine all the qualities that go to make up a first-rate guide, combining great personal bravery with the most untiring energy, and withal very quiet and unassuming in his manners, speaking the Sioux language fluently, and having intimate knowledge of their manners and customs. He was of great assistance in making treaties whereby we were fully enabled to pass through the hostile Indians' country.

While I was gone to the agency the train travelled up the Niobrara to the Verdigris creek, up which they proceeded about a mile to obtain a suitable crossing. A good ford was made, and the train crossed and encamped on the west bank of the creek, which is here about twenty feet wide by two and a half feet deep, with quicksand bed and very rapid current.

I would suggest the importance of building a good bridge over this creek, which could be done without great expense.

15th.—The command broke corral at 6½ a. m., and, ascending the bluffs of Verdigris creek, travelled over the high prairie, at some distance from the river, to avoid the short ravines leading into it. In the afternoon descended into the Niobrara bottom, and crossing Cedar creek, camped, at 4 p. m., on the east bank of a small creek called Swamp creek, which certainly was a misnomer, as it was a fine little stream. The train moved six miles this day, and I joined it, with Baptiste, in the afternoon. The grass, wood, and water at this camp were first-rate.

16th.—A very severe shower of rain fell last night. We broke camp and started at 6 a. m., and, travelling about four miles, (after crossing Swamp creek, over which we made a good ford,) ascended again the bluffs, at a gentle slope, and travelled over the high prairie in a westerly direction. The river valley at this point is very beautiful, and covered with a luxuriant growth of vegetation. At noon came to the Mauvais Terre creek, which we bridged at about two miles from its mouth. This stream is about fifteen feet wide by eighteen inches deep, with quite rapid current. Grass, wood, and water good at camp; timber chiefly burr-oak and cottonwood.

Two of the escort deserted us at noon, and were not recaptured.

17th.—We had a very severe thunder-shower last night, and in the darkness many of the cattle escaped the herders, and much delay was occasioned in starting on that account. Having risen at 3½ a. m., we made ready and started at 7 a. m., and travelled over good fair country for thirteen miles, crossing Woozinga creek, and camping on the west bank of the Big Coulter, which is about twelve feet wide by eighteen inches deep, with rapid current over gravel bed. Good fords were made over both these creeks; but I would suggest the necessity of having them bridged for future travel, as the expense would not be very great, and crossing would be greatly facilitated thereby. Our course during the day was a little south of west, to head out the short ravines leading into the Niobrara. The face of the country is gently undulating, and covered with tall grass and flowers. Wood, water, and grass at camp first-rate.

18th.—Fine day. It being Sabbath, we remained in camp, as I had determined not to travel or work on the Sabbath, except in case of necessity. This day I distributed the arms received from General Sully to the men, as far as they would go.

19th.—Weather quite pleasant. Starting in good season, we travelled about thirteen miles over gently undulating prairie, crossing Cottonwood creek at noon, and camping, at 3 p. m., on a small creek called Mule creek; Cottonwood creek is about fifteen feet in width by one and a half feet deep, with rapid current over gravelly bed. A good ford was made over this creek, which, however, should be bridged. Grass and water on the route first-rate. The timber on the Cottonwood is principally cottonwood of a good quality, and burr-oak of a poor quality.

20th.—Day fine, but quite warm. Made fords over and crossed three small prairie streams during the day; all these streams were of very pure cold water. Surface of the country gently undulating and fine to travel over. The Forked Buttes, on the Keya Paha river, were visible to the northward all day. Our guides, in advance, shot two antelopes, great numbers of which were seen running about the prairie. Travelled thirteen and a half miles, and camped on the Little Platte, at 3½ p. m. This stream is about fifteen feet wide and clear, with a rapid current. Grass and wood good at camp.

21st.—Good travelling over high prairie. Crossed in the forenoon a creek about twelve feet wide; the channel of which being too deeply cut to admit of good ford for the double wagons, we bridged it. Considerable timber grows along this stream, chiefly burr-oak and cedar, of rather better quality than we had seen on most of the streams we had crossed. Fragments of limestone were found by Dr. Tingley, but he could find no out-cropping strata. To the southwest sand-hills were seen, which our guides believed to extend to the river, and we therefore directed our course more northerly; but in the afternoon found that we could have travelled in a direct line, as the elevations were not as sandy as they seemed at a distance, and we turned southward till in a direct line with our road at noon. This bend in the road can be cut off without trouble, and considerable distance saved thereby. Camped at 4 p. m. on Small creek; grass and water good at camp, but wood scarce.

22d.—Weather cool and cloudy in the morning. Crossed the northern extremity of the sand-hills without difficulty, and entered upon a level prairie, stretching as far to the westward as the eye could reach, bounded on the south by the sand-hills. These are oblong elevations, running parallel, or nearly so, with the river, and increasing in elevation to the southward. Between these are small valleys, covered with tall grass, and the surface of the ground is hard but somewhat moist, and good to travel over. The hills are covered scantily with the usual prairie vegetation. Encamped on a small prairie creek at 5 p. m., having made about seventeen miles. Good grass and water on the creek.

23d.—Made a good ford over the stream, where we camped, and started on at 7 a. m. At about three miles out, came to a small stream of very fine water,

growing along the banks of which was oak and cedar trees. Made a good ford over this stream, and, crossing, ascended a gentle slope, and came on a wide, level plain, fine to travel over, and covered with a heavy growth of bearded grass, which, waving in the wind, had the appearance of an immense grain-field. At ten miles out came to the head of a deep ravine, near which we passed by. The sides of the ravine were quite steep, and composed of limestone, with white sandstone above it, with oak, pine, and cedar trees growing on them. At fourteen and a half miles came to Pine creek, upon which we camped at 4 p. m. This creek has much pine and cedar timber of a second-rate quality growing on its banks. Grass, wood, and water plenty and good. The weather was cool in the morning, but sultry in the middle of the day. Several mules in the escort train gave out during the day.

24th.—A very severe thunder-shower occurred last night, and it still rained in the morning, but it broke away early, and by 9 o'clock everything had dried off so that we could start. To hasten the crossing two good fords were made over this creek, which is about forty feet wide, with rapid current and quicksand bottom. Teams were doubled for the crossing and ascent of the bluff on the opposite side, which was very wet and heavy from the recent rain. After ascending the bluff we came to a very fine table-land, over which we travelled in a westerly direction, and camped on the plateau at the bank of the Niobrara at about 1 p. m., between the heads of two ravines, in each of which were springs of the purest cold water, and here was also plenty of fine grass for the animals, and oak, pine, cedar, and cottonwood grew in abundance in the ravines and river bottoms. On account of our late start, and the time taken in making fords, we travelled only five miles to-day. The country over which we came was very fine to travel over.

25th.—Sunday. Remained in camp all day.

26th.—Weather fine and cool for travelling. Made about seventeen and a half miles, and corralled on a fine stream called Lone Pine creek; it is about 25 feet wide by 2 feet deep, with gravelly bottom and swift current. The face of the country to-day was gently rolling, and fine to travel over. During the day's march we passed along the side of a deep cañon running into the Niobrara. The walls were from 50 to 100 feet in perpendicular height, composed of lime and sandstone, embedded in which Dr. Tingley found many fragments of fossil bones and petrified wood; grass, wood, and water abundant; course a little south of west, to avoid the heads of ravines running into the river. Near the stream where we camped we passed the trail of two or three hundred Indians, which had been made quite recently; a sharp lookout was kept, but none were seen by the scouts.

27th.—Made a ford at the stream, and crossed without difficulty. Course during the day westerly, and, by making occasionally small detours, a good road was obtained. Some sand-hills were located near the route, which we avoided. Camped at 3 p. m. on a small stream with good grass and water, and cedar and pine sufficient for fuel. Weather hot and sultry, and three mules of the escort train gave out during the day.

28th.—Severe thunder-shower last night, and some rain this morning. The first two miles of our day's travel to-day were quite rough and broken, but at the end of that distance we entered the valley of Bear creek, which, running from the west, enabled us to travel up it for about nine miles, where we made a ford, crossed over, and camped on the north side at 2 p. m. The creek valley is about three-fourths of a mile wide, level, and covered with a most luxuriant growth of grass. It seems to be the finest place for farming that we had seen, though for timber one would have to go to the river, distant about five miles. The stream is very sluggish, being backed up by a succession of beaver dams. No wood at this camp, but plenty of "buffalo chips."

29th.—Cool in the morning, but a pleasant day. Travelled fifteen and a half

miles, and camped at 4½ p. m. on the Niobrara bottom, at the mouth of a small stream. This point we were obliged to make to cross this stream, the channel being cut through a cañon on the high prairie with almost perpendicular sides. During the day we passed a very fine stream about six feet wide, running very swiftly over a rocky bed, over which a ford was made without difficulty. Below the ford the ledges break off very fast, making a cañon, through which the stream ran. The sides were composed of lime and sandstone rock, imbedded in which Dr. Tingley discovered the fossil remains of two huge tortoises quite perfect and entire; the transverse diameter of each could not have been less than three feet. Much petrified wood was also seen on the banks of the creek. The surface of the country during the day was generally quite good to travel over. At the point where we camped on the river the upper line of bluffs is capped with pine, and lower down grow oak, pine, and some cottonwood. In many places Dr. Tingley pointed out the remains of a river terrace. The river here is about 100 yards in width, by 1½ to 2 feet deep, with quicksand bottom. Opposite camp the ground slopes very gradually from the river to the high prairie; near camp also, on the opposite side, were several Indian graves, *buried* in their usual manner, by being placed on scaffolds placed on posts set in the ground. At this point, on account of his teams giving out, Captain Williford *cached* a load of pork and fish, and abandoned his poorest wagon, by which means he would have an occasional change, and thus better enable his teams to do their work.

30th.—Our guides informed us that the next stream to cross would be Snake river, which ran through a cañon, and could not be crossed except at some distance from its mouth. We, therefore, after making a ford over the stream at place and crossing, shaped our course more to the southward, and came to the place where we decided to cross Snake river, after about sixteen miles' travel. This point is about ten miles from its mouth; grass fair, and wood and water plenty at camp. About two miles below where we camped the river runs over falls of about 6, 10, and 25 feet respectively, making a very fine appearance at camp; it is about 100 feet wide, by a foot in depth, with sandy bottom; with some work, a good ford was made over it. Recent Indian signs were seen quite numerous. The scenery below camp on the river is very grand and beautiful. The walls of the cañon are composed of rocks of a cretaceous character, lime and sandstone, with marl, in which many fossil remains were discovered.

July 1st.—Day very warm, and road in many places very heavy, and we doubled our teams to cross the river and ascend the bluffs on the opposite side; at noon the mercury stood at 90° in the shade. After crossing we travelled about twelve miles in a northwesterly direction to strike the Niobrara again, and at 5 p. m., no water having been found, and men and teams suffering much from want of it, I decided to leave the train and drive the animals, with the cook-wagons, to the river, distant about four miles to camp, where we arrived at sundown, much fatigued.

2d.—Weather warmer; mercury 103° in the shade at noon, and 106° at 2 p. m. The wagons taken to the river last night were sent up the river, under command of my engineer, to await the arrival of the balance of the train. As the road, from the train to the point I wished to make on the river, was to be very rough and heavy with sand, and the weather was most excessively warm, I decided to bring in only half the train this day, which was accomplished at 2 p. m. Two oxen died from heat during the day, and a soldier was rendered insensible from sun-stroke.

3d.—Believing that a better road could be obtained by keeping near the Niobrara, from our camp on the 30th ultimo to this point, and having decided to remain at this camp till the 5th instant, I sent Judge Smith, my engineer, on a reconnoissance to the mouth of Snake river, with an escort of four men of company B, Dakota cavalry; three of the men straggled and came back to camp, being afraid of Indians, but he made the reconnoissance accompanied by one

man. He reported that the only obstacle was at the mouth of Snake river, where much heavy grading would have to be made for a short distance, and that a bridge should then be built over Snake river; this done, a good road might be obtained, cutting off considerable distance. He returned at 9 p. m., having travelled about fifty miles during the day; during the day the balance of the train was brought into camp in good shape; mercury 100° in the shade at 1 p. m. Grass, wood, and water plenty at this camp.

4th.—Very warm day, mercury 103° in the shade at noon, and breezes from the south blowing excessively hot. The escort were drilled, inspected, and fired a salute at noon.

5th.—Started at $5\frac{1}{2}$ a. m., and travelled eight miles through rolling country, with some sand in places, and camped, at 12 m., on the south bank of a spring ravine of pure cold water. Grass fair, and wood and water plenty. Dr. Tingley found on the river bluffs, on this day's travel, the head of the femur, or thigh-bone of a mastodon, with many other fossil bones, teeth, and much petrified wood, and arrived at camp, as usual, laden down with fossil remains. Course, during the day, somewhat south of west.

6th.—Rain fell during the night, and the weather was cool in the morning. Graded down the banks of the ravine, and crossed at about a mile above our camp; travelled then about thirteen miles, and camped on the high prairie near the bank of the Niobrara. Surface of the country to-day was mostly high, level table-land, easy to travel over. Course, during the day, westerly. Numerous springs of pure, cold, soft water gushed out of the river-bed near our camp, and wood and grass were abundant.

7th.—Weather very fine; travelled about four miles over rolling country, where occasionally grading had to be done, but at the end of that distance we emerged again upon a high table-land, over which we travelled for the balance of the day; plenty of wood, grass, and water along the route; arrived at camp at 3 p. m., and at $5\frac{1}{2}$ p. m. a very severe thunder-shower occurred, but it cleared away before dark, leaving the air pure and refreshing; travelled fifteen miles that day.

8th.—Very fine day; the road to-day was laid over a broad valley, which here extends for some distance on both sides of the river; made twelve miles, and at $2\frac{1}{2}$ p. m. arrived at a fine spring-stream, over which we made a ford, and camped on the west side in a very fine site; plenty of grass at camp, and wood on the river, half a mile below the camp. The surface of the country here is very fine to travel over; the river at this point flows in a single channel, over a rocky bed, and through a cañon eighty to one hundred feet in depth, though in some places the ground slopes gradually from the plateau to the river-bed, alternating on either side. Very recent Indian signs were seen, and one of the scouts saw where an antelope had been killed by them on yesterday.

9th.—Some slight showers fell last night, but the day was very pleasant. It being Sunday, we remained in camp. Fossil remains were found in abundance by the men on the banks of the creek between camp and the river. The surface of the country about is level or gently undulating, and very fine to travel over, and we have made good progress during the last few days, but little work having been required to make a first-rate road-bed. Scouts report seeing Indians to-day, who refused to communicate with them.

10th.—Weather cool this morning, and a dense fog obscured all objects at a short distance, on account of which we had some difficulty in collecting the herd together; but we got a fair start, and, travelling over a fine level or gently undulating table-land, came to the place where the guides had decided to cross the Niobrara to the north side, which was just above the mouth of Antelope creek; the river at this point is about two hundred feet wide by one and a half foot deep, and runs swiftly over a rocky bed. All hands were set at work making a ford, which was thus soon accomplished, and the teams crossed without diffi-

culty; travelled about twelve miles, and camped on a bluff near the river. The grass, wood, and water were good on the route to-day. On the north side of the river we saw, in many places, the wagon-track which Estes, our chief guide, recognized as that made by Lieutenant (now General) Warren, in 1856.

11th.—Very fine, cool day. Travelled about sixteen miles over a level or gently rolling country, and camped on the bluff, near a small creek, which we called Rush creek, from the quantity of rushes there abounding. Grass and water were plenty at camp, but for wood we had to go about a mile. The escort mules, as usual, gave out occasionally during the day. The guides having decided to leave this river and strike for White river to-morrow, a squad of the cavalry were detailed to accompany Baptiste on a reconnoissance towards that river. All of them, however, straggled back to camp, leaving him alone; he arrived, however, safely in camp at 11 p. m., having ridden hard all day.

12th.—A supply of wood was procured on the creek above camp, and we travelled eight miles up the creek, in the direction of White river, and camped on the last water on the creek, at 12 m. Surface of the country good to travel over, but soil rather poor; grass at camp good. Our chief guide in advance reported a fight with two Indians, from whom he captured two ponies.

13th.—Made an early start, and travelled in a northwesterly direction about fifteen miles, over a rolling country, but good to travel over, camping, at 4 p. m., on the head of a ravine leading into White river. Grass, wood, and water fair at camp; good springs of pure water were obtained by digging; the soil on the high lands is rather poor. Elk and antelope were seen during the day in great numbers. The Black Hills were seen, for the first time, from a bluff on the west side of the camp.

14th.—This day we came into the country on the south side of the White river, known as the Bad Sands; travelled fourteen miles nearly north over a circuitous route and camped at 3 p. m. on a spring ravine leading into White river; in several places we were obliged to cut down the trees, clear out the road, and grade down some short pitches, but the day's travel, taken as a whole, was quite easy on the cattle, though very warm, the mercury standing at 95° at 2 p. m.; some mules, as usual, gave out during the day; water, grass, and wood, good at camp; the scouts report seeing Indians at night, but none came near camp.

15th.—Very warm day, mercury standing at 94° at 2 p. m.; travelled fifteen miles over a very circuitous route to avoid the ravines in the Bad Sands, and much time was consumed in grading down some steep cuts, so that the train could pass, but this was finally accomplished with ease to the teams. Baptiste, in advance, discovered an Indian scout, and hailed him, but he ran away and could not be overtaken in the rough country. Camped at 4½ p. m., on White river. Grass and wood in fair quantity at camp. A more thorough reconnoissance than we had time to make should be made at this place, by which, I am of the opinion, with a reasonable amount of work, at least eight or ten miles could be saved from the distance travelled during the last three days.

16th.—To-day being the Sabbath, we remained in camp; heavy rains fell last night, and the ground is very muddy to-day; weather cool and cloudy; the river rose about four feet last night from the rain that fell. The surface of the country away from the river bottoms is barren, and very rough and rocky, and cut up by numerous ravines. Many kinds of rocks are exposed to view with white and variegated clays; ochre beds, of various colors, shales, veins of selenite, and fibrous and stalactite forms of gypsum. The veins of selenite were from two to six inches in thickness, descending perpendicularly through the shales and crossing each other at right angles.

17th.—Weather cool, cloudy, and windy; the river at this point was forty or fifty feet wide, with high banks and gravelly bottom, with the water of a whitish

color like that in the Missouri river, which circumstance probably gave the river its name; the waters having fallen to about their common level, all hands were set at work digging down the banks, cutting brush and putting it in at the water's edge to prevent the wagons cutting into the banks, and the teams were all crossed and on their way westward at 9½ a. m.; crossed two small creeks and camped on the west bank of one, at nine miles distance from last night's camp; over the last creek we put a bridge, and at the former made a ford; crossed General Harney's old trail from Laramie to Pierre on the north side of the river in the valley. The surface of the country to-day was rolling, but easy to travel over, except that it was somewhat heavy from the recent rains; grass fair at camp, but wood scarce; many high rocky buttes were seen to the north and northeast of us, and many strata of loose shales were exposed along the route, dipping in various directions, mostly southeast; through these were veins of selenite, and large concretions contained within cavities lined with beautiful crystals of carbonate of lime. There was also in many places exposed a light-colored stratum strongly impregnated with an acid thought to be sulphuric.

18th.—Got an early start and travelled fifteen miles in a northwesterly direction, over a ridge between two creeks running into White river, and passing the divide between the White and Cheyenne rivers; camped at 5 p. m. on the west side of Dry-wood creek, which we bridged. The country to the southward is gently rolling, but that north and northeastward is very rough, and of the nature of the Bad Sands; grass good at camp; water fair, and a fair supply of timber for camping purposes. The soil hereabouts is thin and rather poor. The valley of the creek is nearly level, and lays very fine. Passed during the day a very symmetrical butte, about two hundred feet in height, composed of fossiliferous limestone; the soil during the day's march was mostly dark clay or marl; the creek is about eighteen feet wide by one and a half foot in depth, and runs very sluggishly.

19th.—Came fourteen miles over a fair-lying country, at a distance of about ten miles south of and parallel to the South Cheyenne river. At about noon it became cloudy, and a severe storm came up, the wind blowing in succession from all points of the compass; the mud soon became so deep that it was impossible to travel, and we corralled on the banks of a ravine through which ran a large stream, the effects of the rain; nothing was found worthy of mention at this camp, except the mud; the country was very fair to travel over, except from the effects of the rain.

20th.—Rain fell last night during most of the night, but in the morning it cleared up somewhat, and after drying off a little we yoked up and started. The mud drying up somewhat during the forenoon, we got along without serious trouble, and coming at noon to a small creek leading into Hat creek, we corralled, and spread out our camp equipage to dry; grass and water were abundant at this camp, and sufficient wood for camping purposes. Captain Williford, commanding the escort, had announced to me that his men were likely to be greatly in need of clothing before the end of the expedition, as he had drawn only three months' supplies on starting from Leavenworth, and but very little could be obtained at Sioux City. As Fort Laramie was the nearest post at which it was supposed that anything of that nature could be obtained, he decided to go there for supplies, much to my regret, as we should thereby lose at least one, and perhaps two, weeks of the best part of the season; but there seemed to be no help for it, and accordingly I loaned him one of our wagons, which was lighter than his army wagons, and to which he attached six of his best mules for the journey, to be accompanied by an escort of fifteen mounted men, commanded by Lieutenant Dana, his acting quartermaster.

It was arranged that we should proceed by short stages, and be joined again by this party on the Dry fork of the Cheyenne, up which we had determined to travel for some way. The result of this arrangement will be seen in the sequel.

21st.—Lieutenant Dana's party left for Laramie, distant about seventy-five miles, this morning at 8½ o'clock; weather cool and very fine; remained in camp all day, having detailed a party to work digging down the banks of Hat creek, which we decided to cross about two miles below camp. On the east side of the place selected for crossing was a perpendicular bank, over twenty feet high, of very hard, compact clay, through which a roadway had to be dug from the table-land to the creek bed.

22d.—Party still at work grading down the bank of Hat creek. The creek is about seventy-five feet wide by one foot and a half deep, running swiftly over slate bed rock. There is considerable cottonwood growing on it, and in places between it and the Cheyenne considerable pine timber is growing. Another party was sent on a reconnoissance to the Cheyenne, which flows at the south base of the Black Hills, at about eight or ten miles from camp. They report the river to be about three hundred feet wide by one and a half to two feet deep, and running through a cañon with almost perpendicular walls, two hundred to three hundred feet in height. The walls were composed mostly of reddish sandstone. Very recent Indian signs were seen by this party, but no Indians were discovered. Recent trails were also discovered by guides and scouts who were out to the westward on reconnoissance, and from indications they believed we had been seen by one party, who had retreated.

23d.—Sunday, remained in camp all day; forenoon very pleasant, but at about 4 p. m. occurred the worst hail-storm I had ever seen; every tent but one was blown down in an instant, and that kept erect only by the united efforts of three men. Cattle, horses, and mules, all stampeded before the storm in one confused mass. At least three inches of hail fell in a few minutes, and everything was completely soaked through, heavy duck wagon covers seeming to offer but little resistance to the penetrating rain; but the storm was too violent to be of long duration, and subsided in the course of half an hour, when the rest of the day was spent in hunting up the scattered herd and putting things together as snugly as possible. Our large Sibley tents were much torn in being blown down, and much camp equipage was blown away, and could not be found after the storm. The backs of many cattle were pelted with hail till they bled.

24th.—The day broke fine; spread out our bedding and other articles to dry, and at 11 a. m. broke camp, and crossing Hat creek, camped on the west side, near the creek; grass, water, and wood plenty at camp. Most of the grass found in this region is the gramma grass, which is very sweet and nutritious, and appears to have great fattening properties for stock. As we did not expect to make very long journeys till joined again by Lieutenant Dana's party, we camped after making two miles to-day.

25th.—Day fine, but quite warm at noon, mercury standing at 85° at 1 p. m.; travelled fifteen miles over a fair-lying country, with clayey soil, rather heavy from recent rains; saw one buffalo that had been killed by Indians within two days, only a part of which had been taken by them; camped at 2½ p. m. on Horse-head creek, which leads into the Cheyenne; grass rather scarce at camp. During the day we passed through a gap in a ridge of limestone that extended from north to south across our paths; it was about fifty feet in height, with strata dipping to the west at an angle of about 35°. We got rained upon again on our arrival at camp. The pioneers, immediately on our arrival at camp, made a good ford over the creek to facilitate and hasten our crossing to-morrow.

26th.—Got a good start and crossed the creek without difficulty. At the ford we came to Sage creek, distant five and a half miles, at 10½ a. m. The channel of this creek being cut too deep to admit of making a good ford for the double wagons of the freight train, we bridged it, and, crossing, camped on the west side. Greasewood, sage, and cactus are abundant on the high land, but grass in the low valleys and ravines is plenty and of good quality. Wood is scarce, but plenty can be obtained for camping purposes. Large concretions,

containing within most beautiful crystals of calcareous spar, were very numerous on this creek, and many beautiful specimens were obtained, but discarded for want of transportation.

27th.—Travelled seven miles westward over a sterile country, but easy to travel upon. Many patches of the wild cherry were seen loaded with fruit. Bear tracks, made on yesterday, were seen by scouts, but no bear came in sight. Weather cool and fine for travelling; grass and water good at camp; got into camp at 12 m.

28th.—Starting at 5½ a. m., and travelling in a westerly direction twelve miles, we came to the South Cheyenne at about 12 m. The high ground travelled over is quite barren, and covered with broad-leaved cactus; but grass is abundant in all the ravines and low-lands, and on the bottoms at the river is the best gramma grass we have seen, much of it standing one and a half foot in height. The guides in advance saw buffalo cross the river, and Baptiste creeping upon them laid one of them low with one well-directed shot from his sure rifle; this gave us plenty of fresh meat for a change in camp. All hands were set at work digging down the banks, and cutting and hauling logs and brush to put in at the water's edge to prevent the wagons cutting in too deeply at the ford. A good ford was made in the afternoon ready for crossing on the morrow. On this river is a belt of cottonwood timber about eighty rods in width, but of a rather stunted growth. The stream is about one hundred and twenty-five feet wide by one foot deep, with sandy bed and much quicksand in many places, but the bed at crossing was quite firm and hard.

29th.—Crossed the river and moved camp one mile to the north side. Day very warm, mercury standing at 99° in the shade at 2 p. m. At 3½ a. m. a party was sent on a reconnoissance to the Black Hills, distant about eight or ten miles.

30th.—A very warm day; remained in camp all day; mercury indicating 96° in the shade at noon. The party returned from the Black Hills in the afternoon, and reported that they crossed Beaver creek a few miles above its junction with the Cheyenne, and ascended the mountain ridge on the west side of the hill, when a vast plain twenty miles in width spread out to their view. The soil was apparently composed of red clay, which being cut up by numerous ravines, presented, when reviewed from the mountain top, a very grand and beautiful appearance. The descent into this valley being very difficult, the party returned back and came to camp. Pine and cedar timber of a second-rate quality grows in abundance on these mountains. No recent Indian signs were seen by the party.

31st.—Very high wind, which made travelling very uncomfortable; came twenty miles over a rough stony country, cut up considerably by ravines, the grading of which kept the pioneers quite busy all day; our course was nearly northwest during the day, and we kept the ridge away from the stream to avoid the ravines putting into it. Soil varying, but mostly poor, producing nothing except sage, brush, greasewood and cactus, with a fair supply of gramma grass in the low places. The most remarkable feature of the country is the appearance of the stone which abounded along the route, and was mostly sandstone; from some cause, probably concretionary structure, the strata varied in hardness, and in many places the lower strata appeared to have been washed or blown away in whole or part, leaving the upper stratum lying as if on pillars, or loosely on the ground where its support had failed. Columns of this sandstone capped with rocks so wide as to afford shelter from the sun were numerous among these stones. Among the rocks in the latter part of the day's travel were found beds of clay, apparently local, containing bones of extinct animals of a very large size in one place Dr. Tingley observed these bones to completely cover the ground for a considerable space around. Encamped on the creek, near which we

discovered a trail supposed to have been made by Lieutenant (now General) Reynolds on his reconnoissance through that country.

August 1st.—Weather pleasant, but windy; travelled eleven miles up Dry fork of the Cheyenne over a hard, solid road-bed, and camped on the creek at 1 p. m. The high prairie on the route is barren of everything except cactus, sage brush, and greasewood, but a fair supply of grass grows in the ravines and low places. There appeared to be much more water in the stream as we ascended it, but the current was very sluggish, being backed up by a succession of beaver dams. A party of Indians with about twenty ponies and one shod horse, with two footmen, had passed up this stream about two weeks before apparently in great haste, as the ponies were kept at a gallop all the time. At about 10 p. m. Lieutenant Dana arrived with his command from Laramie with no supplies, having foolishly left their wagon to come up with a detachment which they said was ordered to come from Laramie to the Black Hills, pass around and join General Conner, supposed to be on the Powder river.

2d.—The cavalry were to-day ordered back to ascend the old Nomerus fork, in the direction of Laramie, to see if tidings could be obtained of the wagon sent for clothing and left by Lieutenant Dana, and we engaged to proceed by short journeys until they should overtake us. Travelled up the creek about fourteen miles and camped; grass poor but wood and water plenty; rocks were seen on the two previous days of almost every imaginable form; country good to travel over, being tolerably level and with compact soil.

3d.—The main branch of the creek being thought to run too much south of our course we left it, and travelling four miles camped on a dry creek, but where there was good grass with water in the creek at a mile distant; after camping the guides went ahead on a reconnoissance.

4th.—Cloudy in the morning and some rain in the forenoon; travelled seventeen miles northwestwardly, and leaving the tributaries of the South Cheyenne came over to a branch of the North Cheyenne. Passed a vein of lignite on the summit between these streams, which, however, was but of limited extent. A fire was built at the edge of it by some of the men, and it burned quite freely. We also saw here large concretionary structures, some of them seven or eight feet in diameter, of circular shape, and fractured and divided by both radiating and concentric lines so as to separate the blocks into segments of a circle resembling well-bricks. Crossed during the day several dry ravines, which we graded down and made good crossings over; camped at 1 p. m. Grass and water fair, but wood scarce at camp.

5th.—Travelled five and a half miles, crossing a divide where the bluffs were stratified with lignite and sandstone, and camped on a branch of the North Cheyenne at 10 a. m; grass and cottonwood plenty; water like that in the Missouri river, but good to the taste and clears off by standing a short time; back from the stream, on the southeast, were many high bluffs capped with pine and cedar trees.

6th.—Sunday, remained in camp; the guides went on a reconnoissance, and while out shot some buffalo and packed a quantity of the meat on their ponies to camp; weather fine, but rather too warm for comfort.

7th.—Came northwest eight and a half miles, and at noon camped on another branch of the North Cheyenne; during the forenoon we passed several small ravines, which we graded down and made good crossings over. The guides and scouts went ahead on a reconnoissance, on our arrival at camp, and reported on their return that to the west of us the buffalo were travelling northwestward in great numbers; weather very warm; grass, water, and wood plenty at camp.

8th.—Travelled up the stream to the west about six miles, crossing it several times; at each crossing we were obliged to dig down the banks and make fords; this day's work was very fatiguing to all; camped on the same stream at night

with a fair amount of wood, water, and grass at camp. To the southward of camp, at about a mile, the scouts discovered a vein of coal on fire, which apparently had been burning for some time; the seam was at the foot of a bluff, and the clay above was falling down upon it as it burned, and much heat and some smoke issued through the crevices. The coal was bituminous, of a good quality, and burned freely in the open air with comparatively little smoke.

9th.—Fine day, but quite warm; moved up the stream eight and a half miles over a fair-lying open country, and camped at noon; there was but little wood at camp, but grass and water were plenty and of first-rate quality; in many places were here seen large circular red buttes rising abruptly from the plain, apparently composed of stone of a volcanic origin, but each butte being regular and symmetrical in form, presented a very fine appearance; from this point we decided to strike northwest to Powder river, to pass, if possible, to the north side of Pumpkin buttes. To-day the cavalry returned from their scout and reported no tidings of the wagon left by Lieutenant Dana, so that on the whole we had been delayed more than a week, and no good has resulted therefrom.

On the 10th and 11th instants we marched thirty-two miles over a rolling country with but little water or wood, though grass was abundant; a reconnoissance was then made to Powder river, and we decided that, owing to the very *bad lands* on Powder river and lack of water, a road there would be impracticable for travel. At our camp on the 11th instant we found large quantities of first-rate bituminous coal—the best I have ever seen in the west; from the amounts seen cropping out I should think it almost inexhaustible.

13th.—Having decided to retrace our steps to our camp of the 9th instant, and from thence make the road, and travel to Powder river on the south side of Pumpkin buttes, we started this morning; at noon, as the heat was excessive, we corralled near some small springs to water our stock. While here Nat. D. Hedges, of Sioux City, who was scouting about one and a half mile from camp, was surprised and killed by a party of Cheyenne Indians, who at the same time made a dash on our herd and stampeded and drove off eight cavalry horses. A party immediately volunteered, and scouting out, found the body of Mr. Hedges scalped and mutilated. He was a young man who had charge of the private freight train that accompanied the expedition, was about nineteen years of age and of much promise, being a genial and pleasant companion, and of very correct habits; his loss cast a gloom over the camp not soon dispelled. From this point we travelled till after dark on our back track and at 9 p. m. corralled, keeping a strict guard.

14th.—Travelled two and a half miles, and corraling on a good site turned out our cattle for water and grass. A large party of Indians drove in the pickets and made a dash at the herd, but were beaten off and got none. Having made a rude coffin from some boards of an abandoned government wagon, we buried young Hedges at 5 p. m. in the centre of the corral, taking pains to conceal the grave so that no one except those present should be able find it, on account of Indians. Weather during the day fine, but rather warm.

15th.—Fine morning. The bluffs around at sunrise were covered with Indians to the number of 500 to 600, and fighting was commenced by their charging down over the plain and shooting into the corral; each charge was repulsed, however, and at about noon they called for peace. After some parleying, I decided to treat with them, and for some bacon, sugar, coffee, flour and tobacco, they agreed to let us go on our way. The minority, however, were discontented with this treaty, but were restrained by the majority from fighting. I endeavored to keep the men as much away from them as possible, fearing trouble, but two of the escort ventured out among them, and in the melee were shot; their names were Anthony Nelson and John Rawze, of company B, Dakota cavalry. The Indians immediately left, and a party sent out to reconnoitre found the body of Nelson and brought it to camp. We buried

him at dark in a rifle-pit on the west side of the corral. The scouts reported several ponies killed in the ravines near camp, which was probably done by shells from our howitzers. These Indians were mostly Cheyennes and Sioux.

16th.—Morning fine, but day very warm, yoked up, and coming ten miles, encamped at 11 a. m., at our camp of the 9th instant, at which place we determined to stay, and send a scouting party to Powder river, to discover, if possible, any trail of General Connor, whom we supposed to have gone down Powder river on an expedition. Our escort commander began to grow faint-hearted, and all the officers, except Lieutenant Marshall, were clamorous for the abandonment of the expedition and proceeding to Laramie as fast as possible. I endeavored to get a cavalry escort to volunteer to go with our scouts to Powder river, but the men refused to volunteer, and the commander did not incline to detail them, so the scouts concluded to go alone on the morrow. At 6 p. m. a party of Indians drove in the pickets, and made a dash at the herd, but were beaten off and got nothing.

17th.—At 2 a. m. our scouts, Lieutenant Colonel Godfrey, late of 2d Maine cavalry, and Charles W. Lears, with Ester and Defond, our guides, started alone on a reconnaissance to Powder river, and at daylight were far away from camp. The cattle were herded during the day by the drivers and pioneers, there seeming to be an indisposition on the part of the escort commander to expose his men as pickets; he seemed, in fact, indisposed to do much of anything, except to go to Laramie by the shortest route. A few Indians were seen during the day lurking behind the bluffs at a mile or so from camp.

18th.—Remained in camp; drivers and pioneers herded cattle all day; day warm and pleasant.

19th.—The reconnoitring party arrived in camp this morning at about 6 o'clock, and reported that a good road may be made to Powder river, distant about 50 miles; that General Connor had passed down the Dry fork about two days since, from appearances, with a large train. They had been almost constantly in the saddle for about 50 hours, and had ridden about 150 miles during that time. One horse had given out, and was left at about 16 miles from camp, on their return; he was, however, recovered on the next day. All the Indians on the river had apparently gone northward, as no signs were seen of late date. Started the train at 8½ a. m., and travelled southwest to pass to the south of Pumpkin buttes; came 16½ miles over good-lying country, and camped on branch of the north Cheyenne; grass and water plenty, but wood scarce.

20th.—Sunday, pleasant day; remained in camp all day.

21st.—Started at 8½ a. m., and at noon corralled awhile to water our stock; then proceeding in a direction a little south of west, made about 17 miles by 8½ p. m., when a wagon tire came off a government wagon, and we were forced to camp about 6 miles east of the buttes; good grass, but no water at camp.

22d.—Very hard day's travel; came 6 miles and passed through the gap between the two most southern buttes, and thence travelled 16 miles over rough country in a northwest direction, and came at 4 p. m. to the Dry fork of Powder river, where we camped; the day was very warm, and one ox died, and several mules gave out from heat and neglect of the wagon-master of the escort train to water them when he had an opportunity; grass was scarce in the immediate vicinity of camp, as General Connor's command had camped near this spot with large trains, which had eaten it off. There seemed to have been but little rain here this season, everything being much parched by heat.

23d.—Captain Williford having refused to escort the train further, I sent Lieutenant Colonel Godfrey, with Baptiste, to discover, if possible, the whereabouts of General Connor, who was certainly on Powder river below us. They found Fort Connor about thirteen miles below us, but General Connor gone on an expedition to Tongue river. Colonel Godfrey reported the facts in our case to Colonel Kidd, commanding the post, who ordered Captain Williford to report to

him at Fort Connor for duty, and furnished Colonel Godfrey with an escort to proceed to General Connor.

24th.—Very warm day. Travelled down the Dry fork, and camped on the east side of the river about one mile from Fort Connor. Plenty of water and wood at camp, but grass poor.

25th.—Remained in camp to recruit our stock, and hear from General Connor. A party of Indians drove in the herders in the forenoon and stole one horse and killed two oxen. Colonel Godfrey returned to-day with an order from General Connor to Captain Williford to remain at Fort Connor with his infantry command, and to Colonel Kidd to furnish us with a cavalry escort to the Big Horn. Powder river is here about 150 feet wide by one foot deep, with sandy bottom; water in the stream is first rate. Fort Connor is well situated on a table-land on the west side of the stream.

26th.—It being twenty-six miles to Crazy Woman's fork, which was the next water on our route, we determined to make a night drive, as we were going over the route made by General Connor to Tongue river, and expected a fair road to travel over. We started at 4 p. m. and travelled till 11 p. m., when we corralled to rest the stock, and started again at 3 a. m. of the 27th arrived at Crazy Woman's fork at 10 a. m. and corralled. The country over which we travelled was gently rolling, soil hard and easy to travel over, with a fair amount of gramma and bunch grass. The water in the creek is very fine and cool, coming directly from the mountains, and wood is plenty, but grass on the creek is poor this year. The creek is about sixty feet wide by one foot deep, with swift-running current over a rocky bed.

27th.—Started again at 3 p. m. and travelled twenty-three miles over a rolling country, and arrived at 9 a. m. of the 28th at the Clear fork of the Powder river, where we remained during the balance of the day. During the night we corralled about six hours for resting the teams. Grass, wood, and the purest water abundant; course during the last two days mostly northwest. General Connor having recently travelled over the country thus far, less work was required than would otherwise have been, but in many places grading was required at ravines, to enable the double wagons of the freight train to cross without uncoupling. Day pleasant, but quite warm.

29th.—Fine weather in the forenoon, but severe rain fell, and it was quite cold at night. Travelled sixteen miles and camped on a branch of Powder river leading into Piney fork. Road rolling, but good to travel over most of the way. At noon we passed about one-half mile to the west of Father DeSmule's lake, a fine sheet of water, about one mile long by half a mile wide. Our course during the day was parallel with the Big Horn mountains, at a distance of from five to eight miles of their base.

30th.—Crossed Piney fork and came over to a branch of Tongue river; country somewhat rolling, but good to travel over. The soil in the valleys is very good, with plenty of grass and wood. Scouts reported Indians ahead of us. This day we travelled about fifteen miles in a northwest course.

31st.—Travelled twenty-two miles in a course a little west of north, and camped at 5 p. m. on the middle branch of Tongue river; crossed two small streams and the south branch of Tongue river by good fords, which we made. The south branch is about one hundred feet wide by two feet deep, with very fine, clear, cold water, running swiftly over a gravelly bed. An abundance of fine grass grows in the bottoms of the streams. At night Captain Cole, of the 6th Michigan cavalry, a volunteer in the escort, was surrounded and killed by Indians while scouting in advance of the train. He was a young man of fine talents, brave, and genial in his manners, and was much lamented by the command; he had before lost an arm in the service of his country.

September 1st.—Fine day; travelled two and a half miles and crossed the north branch of Tongue river, when our rear guard was attacked by Indians

after the train had crossed, and the loose cattle in the rear of the train stampeded, and over thirty were driven off by the enemy. The train attempted to proceed after crossing, but the surrounding bluffs soon became literally alive with Indians, well armed, and our escort of thirty-five men were insufficient to protect the train, and we were obliged to corral in the bottom. I endeavored to select a spot about equidistant from the river and the bluff to avoid shots from either side. While corralling, James Dillelend, one of my best drivers, was shot and mortally wounded; also a driver of one of the emigrant teams, by name of Merrill, was mortally wounded, and died at night; several horses and cattle were wounded, some of them mortally. Firing was kept up on both sides throughout the day.

2*d*.—Some rain fell during the night, but the weather was fine and cool in the morning. Indians to the number of 250 to 300 came about, but keeping well out of range. The chiefs in the forenoon signified their wish for a treaty, by which means, I suppose, they wished to get something to eat and smoke. They said they were Arrapahoes, and that four days before General Connor had surprised them in camp and captured from them a large number of their ponies, burned their camp, and killed many of them. They wished to make peace to obtain, if possible, their ponies from General Connor, thinking, perhaps, that we might aid them. To peace, of course, we were agreed, as they greatly outnumbered us, and were well armed and mounted, and our cattle began to need water and grass. They agreed to send three of their number with three of our men to General Connor—they wishing for their ponies and we for more men; some of them meanwhile agreed to stay with us as hostages. This being agreed upon, we turned out our stock to graze.

3*d*.—Cold, windy morning; remained in camp. More Indians came to camp at night, but left soon after. They are the same party that were fed at Fort Halleck during last winter, but as soon as spring opened they stole all the horses and mules they could lay their hands upon, and left for this locality, supposing themselves entirely out of the reach of white men. Dillelend died to-day.

4*th*.—Cloudy and windy; some Indians came to camp and left again; they now seemed friendly, but a sharp lookout was kept up to prevent a surprise. Towards night the three Indians who started for General Connor's command returned, and said that many white men were coming to us, and declined to stay at camp. They seemed quite suspicious of more trouble.

5*th*.—Captain Kellogg, of the 6th Michigan cavalry, with twenty-seven men, came into camp at sunrise. This was the party the Indians had seen; they had been with mail to General Connor's command, and having been attacked came to our camp, not daring to go in so few numbers to Fort Connor. They reported that the men sent by us had gone to General Connor, who had gone far down on Tongue river.

6*th*.—Day fine. On the 3*d* we had buried Captain Cole on the north side of the corral, in a rifle-pit, and this day we buried Dillelend and Merrill in a rifle-pit on the south side of camp. Large numbers of buffaloes were seen during the day, and large wolves were very numerous, making the night hideous with their howlings.

7*th*, 8*th*, and 9*th*.—Remained in camp waiting for re-enforcements. Rain commenced to fall on the afternoon of the 7*th*, and fell without intermission till the night of the 9*th*. The mountains on the west of us were covered with snow, which came nearly down to the valley.

10*th*.—The mud got so deep in the corral that we could not move about, and we moved it to a new spot. Weather fine, and mud drying fast to-day.

11*th*.—Fine day; no news yet came from General Connor.

12*th*.—Fine day; some Indians came in sight towards night. As our present escort could not in any event go further than the Big Horn by their orders, a

large majority of the men refused to proceed beyond that point without escort, (only twenty men of the command being willing so to do.) No re-enforcements appearing, I was constrained, to my great regret, to announce that on the morrow we would retreat to Fort Connor.

13th.—With heavy heart I moved the train back towards Fort Connor, supposing that the object of the expedition had failed to be reached; but just before our arrival at night to camp, the scouts in the rear announced the approach of horsemen, which, to my great joy, proved to be re-enforcements from General Connor, which had been prevented from before reaching us by the severe rains and swollen streams. They were company L, 2d California cavalry, and a company of Indian scouts, all commanded by Captain A. E. Brown, of 2d California cavalry.

14th.—As the time of service of our Michigan troops had nearly expired, General Connor had ordered them back to be mustered out, and to-day they started for Fort Laramie. We remained in camp all day awaiting the arrival of Captain Brown's baggage train. Day very fine for the season. The grass, wood, and water in all this country is very good.

15th.—Fine day. Marched to the north branch of Tongue river, and corralled near the river at 4 p. m. A few Indians were discovered by our scouts on this river.

16th.—Travelled nineteen miles and camped on the Little Horn; crossed two small streams during the day, at which we made good fords. The country is very rolling, but hard and good to travel over; and the creek valleys are very fine land, with plenty of timber and grass and the purest water. Our course during the day was about northwest, and many buffaloes were seen.

17th.—Came thirteen miles on a northwest course and camped on a small creek leading into the Little Horn. Country very rolling, but the creek valleys are very fine; crossed during the day two small creeks, over which we made good fords.

18th.—Camped on a small creek at 3 p. m., after travelling sixteen miles over rolling country; day very warm. Much heavy grading was required to descend the bluff into the valley, but a further reconnoissance made, after arriving in the valley, showed a better place to descend the bluffs, which, however, will have to have considerable work done upon it before it can be travelled. The valley is about two to three miles wide, and has much fine grass in it, and considerable timber grows in the bends of the stream; immense herds of buffalo and large numbers of antelope range in every direction; white elk, deer, and bears abound and serve to render this country emphatically a hunter's paradise. The hunters, during this day's march, killed three bears and a large quantity of other game. No signs of hostile Indians were seen to day.

19th.—Came six miles over good road-bed in the valley, and grading down the banks, forded the Big Horn river. This stream is about 400 feet wide, and in most places, at the time we were there, would swim a horse; but after repeated trials we found a place with only about 3½ feet of water. All hands went at work with a will, and at 11 a. m. the teams were all crossed and corralled on the north side of the river. The current runs with great rapidity, and many men were carried some ways down the river by it, but all finally crossed safely. Captain Brown's orders not permitting him to go further than this place with us, as at this place we were considered nearly out of danger, he detailed Sergeant James Youcham, with seven men, to proceed with us to Virginia City, and afterwards to report to him at Salt Lake city, while the balance of his command returned with him to General Connor. Sergeant Youcham performed his duty in a very prompt and energetic manner during the balance of the expedition. To Captain Brown I wish to express my heartfelt thanks, and those also of the rest of the members of the expedition, for the safe and expeditious manner in which he escorted us through the Indian country. A better officer than him-

self, or better troops than those under his command, are not to be found in the service.

20th.—Fine day; many buffaloes in sight; crossed one creek by bridging and another by fording; travelled eighteen miles over a country requiring considerable grading in places to make it passable, and camped on a creek leading into the Big Horn. Grass, water, and wood poor at this camp.

21st.—Cool, cloudy day; came nineteen and a half miles over a fair-lying country, and camped on Pryor's fork at 6 p. m.; in two or three places much grading had to be done to render a passage safe for the double wagons of the freight train. Pryor's fork is about thirty feet wide by two feet deep, with good wood and grass upon its banks, and a swiftly-running current of pure water. Thousands of buffalo, elk, deer, and antelope were seen during the day.

22d.—Fine day; came eleven miles in a northerly direction, and camped on the Yellowstone river at 12 m. The last five miles of the road was very rough, and much grading was done to enable us to descend the bluff of the Yellowstone bottom, where we found, on arriving, plenty of wood, water, and grass.

23d.—Travelled up the Yellowstone eighteen miles, to the mouth of Clark's fork, where we corralled; grass, wood, and water good on the route. Fords were made across two small streams, and ravines were graded down in several places; plenty of game in sight all day; weather very fine.

24th.—Sunday; fine day; remained in camp all day.

25th.—Came southwest nineteen and a half miles, crossing Clark's ford, and camped on Rocky fork. Clark's ford is about one hundred and fifty feet wide at the crossing, by one and a half foot deep, with very swift current, and the water, at the time of our crossing, was quite muddy, probably from snow melting on the mountains, or from the immense herds of buffalo that were crossing above. From the point where we encamped, a reconnoissance made decided that we should have struck Pryor's fork more to the west, and thence west across the country, as water could be found on Clark's fork at convenient places for camping. My guide, whom I had hired on the Big Horn, was an old mountaineer, and pretended to know all about the country when I hired him, yet he could not tell, when at Pryor's fork, if water could be got on this cut-off or not, and I feared to try it so late in the season without being sure. Had I known at Pryor's fork what I learned at this camp, I should have come direct, and the road should be thus made, and thus avoid the Yellowstone bluffs to this place. I am satisfied that a saving of over twenty miles can be made by this cut-off.

26th.—Fine day; crossed Rocky fork to the south side, and travelled about four miles up the valley, over a beautiful level country, thence recrossed the stream and struck off westerly up Berdan's fork, and camped on that stream, after travelling thirteen miles. Rocky fork is a beautiful stream, with considerable timber in the bends, and is about seventy-five feet wide by one and a half foot deep, with very swift-running current over rocky bed, and runs into Clark's fork below our camp of last night. Berdan's fork is smaller, and runs into Rocky fork from the west; we made good fords over these streams at the crossings.

27th.—Cool day, and windy; came fifteen miles westerly, and crossing several small streams, and the east fork of Rosebud river, camped at 4 p. m. on the middle branch of the Rosebud; grass, water, and wood in abundance.

28th.—Cool, windy day, and frosty last night; travelled seventeen miles, crossing the middle and west forks of the Rosebud, and camped at night on the high prairie at 5.30 p. m.; country high, rolling, and good to travel over. The Rosebuds are fine streams, fifty and one hundred feet wide, respectively, by about two feet deep, running swiftly over rocky beds. These streams, as do all we have crossed since leaving Powder river, abound in trout and other fish of the finest quality. We appeared now to have left the buffalo range, though elk, deer, antelope, and bears are very numerous.

29th.—Travelled eighteen miles, and descending into the Yellowstone bottom camped at night on that stream; good country to travel over all day, and grass and wood abundant at camp. We met, to day, a fleet of Mackinaw boats, descending the Yellowstone, loaded with persons coming from the Territory to the States, to the number of four or five hundred.

30th.—Day very pleasant; travelled seventeen miles up the Yellowstone bottom, and crossing Little Rocky, or Cross creek, camped at night half a mile from where we had decided to cross the Yellowstone. Cross creek flows in two channels, each about fifty feet wide by one and a half foot deep, running very swiftly over a rocky bottom; dug down the banks and made a good ford at the creek.

October 1st.—To-day being Sabbath, we remained in camp all day.

2d.—Came nineteen and a half miles up the Yellowstone; after crossing it and leaving the bottom, came over to "Twenty-five Yard" creek, where we camped at 5 p. m. Only one place could be found where the river is fordable, and that in an oblique direction up stream, making a ford at least fifty rods long. The water is about two and a half feet deep in the channel, and runs with great swiftness. The banks were dug down and well prepared for crossing, and the whole train crossed safely over in an hour without serious trouble.

3d.—Pleasant day. Ruleaw, our guide, whom we hired on the Big Horn, who pretended to know all about the country, got lost, and we were obliged to retrace our steps for three miles in one place; but notwithstanding this delay we made eleven miles in a southerly direction, and camped on a small creek leading into the Yellowstone just below the Cañon, distance from the camp to the river about two miles. Grass, wood, and water abundant.

4th.—Cloudy day, with a little rain. Came up the creek in a westerly direction, over the summit between the Yellowstone and Gallatin rivers, and camped in a beautiful park on the west side of the summit; grass and water abundant, and the mountains above us clothed with groves of pine, hemlock, and poplar timber. From our camp this morning a road had been travelled to Virginia City, which, however, needed much repairing to enable the double teams to cross in safety. Distance made this day thirteen miles.

5th.—Train came down to the Gallatin valley, and passing Boseman City, camped on a tributary of the Gallatin river, having travelled sixteen and a half miles. The Gallatin valley is broad, level, and presents a fine appearance, and when irrigated produces abundant crops, the yield of grain on the numerous farms in the valley being very large this season.

6th.—Crossed the stream where we had camped, and also the Gallatin river, and coming fifteen miles, over the divide between the Gallatin and the Madison, camped at 3.30 p. m., on a tributary of the Madison. The Gallatin is a beautiful stream, one hundred feet wide by two and a half feet deep, with very swift current. Country during the day somewhat rolling, but easy to travel over.

7th.—Came to the Madison river, which we crossed by fording; the stream is one hundred and fifty feet wide by two feet deep, and runs very swiftly. After crossing, we travelled up the stream, and camped on a stream running into the Madison; grass, wood, and water good.

8th.—Sunday; remained in camp.

9th.—It rained hard all day, and we remained in corral. We were now in a section said to be one of the best in the Territory for quartz. Many very rich lodes have been discovered hereabouts.

10th.—Cloudy in the morning, but we yoked up and crossed the range between the Madison and Meadow creek, and camped on Meadow creek, having travelled ten miles through a severe rain-storm. In several places much grading had to be done to make the road passable for the double teams.

11th.—Came twelve miles up the Madison, in a southwesterly direction, and

camped at the foot of the range on a small creek; passed several very good farms in the valley, and the mountain tops on either side were covered with snow.

12th.—Came over the range between the Madison and Jefferson rivers, and travelling eight miles came to Virginia City at 10 a. m. One of the very worst hills on the whole route is that leading to Virginia City.

It being too late in the season to return over and straighten up the road and complete the Omaha branch, as I had intended doing this season, I unloaded the supplies, stores and camp equipage, and drove the teams into camp on Stink-water creek, about eight miles from Virginia City, it being the nearest point that good water and pasturage could be obtained. From this time till the 24th I was engaged in paying off the men and putting the outfit in good repair, recruiting the cattle, &c., preparatory to selling them. I finally placed the whole outfit in the hands of a commission merchant, who, being better posted than I could possibly be, was enabled to sell to better advantage for the government. Leaving my wagon-master in charge to assist in selling and to receive the funds, I started for Sioux City, in company with my engineer and clerk, to report as soon as possible. After many vexatious delays I arrived at Sioux City on the 3d of December, thence came, by order, directly to Washington to report in person.

Appendix A, attached to this report, will show an itinerary of the route as prepared by Judge Smith, my engineer.

Appendix B will show the physician's report, made by Doctor Tingley.

I regret exceedingly that owing to the lateness of the season when we arrived, having been much detained by Indians and our first escort, we were unable to go back over the road and finish up the branch to Omaha City. In many places I now know that the road can be shortened and made much better by making cut-offs and different locations, and I think that the interests of the travelling public, and of the people of Montana, require that it should be thus worked and corrected up. I would recommend that an additional appropriation of, say, twenty thousand dollars (\$20,000) be made for that purpose; this, in addition to what is now on hand of the former appropriation, would be of great advantage in rendering the route a great thoroughfare, and the investment would be amply repaid by a route complete, by which much time and distance can be saved in transportation of freight and the travelling public between the States and the great gold-producing Territories of Montana and Idaho. The importance of having this route more fully developed, and kept open for travel by protection against Indians, can hardly be overestimated. It is at least six hundred miles nearer than the route which has hitherto been travelled by many—of Salt Lake—with wood, water, and grass in abundance, and no mountain ranges of importance to cross, and upon the whole a first-rate route to travel over. If the route is protected against Indians, and some places on it relocated and marked in a more thorough manner, all travel to Montana and Idaho must necessarily pass over it, as by it much time and travel can be saved, and the route is much better than an equal number of miles on the west end of any of the routes hitherto travelled, and no alkaline water worth noticing was seen on the whole route, which fact is of great importance to persons engaged in freighting. By this route a stage may be run from the Missouri river to Virginia City in eight (8) days, whereas it now takes sixteen (16) days by the present stage route, when they run upon time.

In conclusion of this report, I desire to render my sincere thanks to my engineer and clerk, my wagon-master, my chief guide, Estes, and my scouts, Lieutenant Colonel J. F. Godfrey and Charles W. Sears. Without the hearty co-operation of these men, which I am proud to say I had at all times, the objects of the expedition could never have been accomplished; also I desire to thank Brigadier General P. E. Connor for the prompt manner in which he furnished us with re-enforcements, when in great peril, weakening his own force for that purpose.

Knowing the great national importance of the successful opening of this route, he, when surrounded by hostile Indians, generously and promptly sent to our aid more than one-third of his available force, and thus successfully passed us through the most hostile Indian country on the continent.

JAMES A. SAWYER,

Superintendent and Disbursing Agent.

Hon. JAMES HARLAN,

Secretary of the Interior, Washington, D. C.

APPENDIX A.

Itinerary of the Niobrara and Virginia City wagon road, prepared by Lewis H. Smith, engineer of the expedition commanded by Colonel J. A. Sawyer, being the actual odometer measurement.

Points on the road.	General course.	Odometer measurement.		Remarks.
		Intermediate miles.	Total miles.	
From Niobrara to camp on the Niobrara	SW	4.5	.....	Camp.
To crossing of Verdigris creek	S. SW	2.4	6.9	Do.
To crossing of Swamp creek	S. NW	6.1	13	Do.
To crossing of creek	W	1.9	14.9	
To crossing of Mauvais Terre creek	W. NW	6.5	21.4	Do.
To crossing of Louse creek	W	7.6	29	
To crossing of Big Coulter creek	W	6.6	35.6	Do.
To crossing of Cottonwood creek	W	9.7	45.3	
To crossing of Mule creek	W	4	49.3	Do.
To crossing of Little Platte creek	W	14.5	63.8	Camp; crossed 3 small creeks during the day.
To crossing of Big Sandy creek	W. SW	4	67.8	
To crossing of Spring creek	W	7	74.8	Camp.
To crossing of Forked creek	S. SW	7.6	82.4	
To crossing of Chip creek	W. SW	9.2	91.6	Do.
To crossing of Pine creek	SW	14.2	105.8	Do.
To the bank of Niobrara river	NW	5.4	111.2	Do.
To crossing of Lone Pine creek	W. SW	17.6	128.8	Do.
To crossing of Prairie creek	W. NW	11.7	140.5	Do.
To Bear creek	NW	1.3	141.8	
Crossing of Bear creek	W	5.6	147.4	Do.
To crossing of Fossil creek	SW	13	160.4	
To crossing of Bogus Snake creek	W	6.5	166.9	Camp on Niobrara, at mouth of creek.
To crossing of Snake river	S. SW	16.7	183.6	Camp.
To the bank of the Niobrara river	N. NW	8.7	192.3	Do.
Up the Niobrara river	W	7.6	199.9	Do.
To crossing of Deep creek	W. SW	16.5	216.4	Do.
To the Niobrara river	W. NW	12.1	228.5	Do.
Up the Niobrara river	SW	25	253.5	On camp between, on river.
Up the Niobrara to crossing	SW	8	261.5	Camp.
Up the Niobrara on north side	SW	4	265.5	Do.
To Rush creek	SW	15.7	281.2	Do.
Up Rush creek	W	8	289.2	Do.
To creek leading to White river	W. NW	14.1	303.3	Do.
To Spring ravine	N. NE	14.4	317.7	Do.
To White river crossing	S. SW	15.7	333.4	Do.
To crossing of Wet creek	W. NW	9	342.4	Cross one small creek between.
To crossing of Dry Wood creek	W. NW	15.7	358.1	Camp.
To branch of Holt creek	W	20.2	378.3	Do.
To crossing of Holt creek	N. NW	2.2	380.5	Do.
To crossing of Horsehead creek	W. SW	15	395.5	Cross one small creek between.
To crossing of Sage creek	W. NW	5.7	401.2	Camp.
To crossing of Rainy creek	NW	9.4	410.6	Do.
To crossing of South Cheyenne creek	W. NW	12.4	423	Do.
To Small creek	N	1	424	Do.
Up the Dry Fork of the Cheyenne	Westerly	20	444	Do.
Do	NW	11.8	455.8	Do.
Do	W. NW	14.4	470.2	Do.

APPENDIX A—Continued.

Points on the road.	General course.	Odometer measurement.		Remarks.
		Intermediate miles.	Total miles.	
Up the Dry Fork of the Cheyenne.....	NW.....	3.8	474	Camp.
To branch of the North Cheyenne.....	NW.....	17.2	491.2	Do.
To crossing of 2d of North Cheyenne.....	W.....	5.4	496.6	Do.
To crossing of 3d of North Cheyenne.....	N. NW.....	9	505.6	Do.
Up the 3d of the North Cheyenne.....	W.....	6.1	511.7	Do.
Do.....do.....	W. SW.....	8.5	520.2	Do.
To the 4th of the North Cheyenne.....	South.....	11.7	531.9	
Up the 4th of the North Cheyenne.....	W.....	5.7	737.6	Do.
Do.....do.....	SW.....	10	547.6	
To gap in Pumpkin buttes.....	SW.....	12	559.6	Camp 6 miles east of the buttes.
To Dry Fork of Powder river.....	W. NW.....	15.2	574.8	Camp.
Down the Dry Fork to Fort Connor.....	NW.....	14.1	588.9	Camp opposite Connor.
To Crazy Woman's Fork of Powder river.....	N. NW.....	26.3	615.3	Camp.
To Clear Fork of Powder river.....	N. NW.....	23.1	638.3	Do.
To branch of Clear Fork of Powder river.....	W. NW.....	1.8	640.1	Do.
To branch of Piney Fork of Powder river..	N. NW.....	14.1	654.2	Cross 3 small creeks between.
To crossing of Piney Fork of Powder river..	N. NW.....	1.1	655.3	Camp.
To creek leading to Tongue river.....	N. NW.....	15.2	670.5	Cross 4 small creeks between.
To crossing of south branch of Tongue river.	W. NW.....	10.4	680.9	Camp.
To crossing of middle branch of Tongue river.	W. NW.....	12.4	693.3	Cross 2 creeks between.
To crossing of north branch of Tongue river.	W. NW.....	2.2	695.5	Camp.
To crossing of branch of Little Horn river..	NW.....	15.6	711.1	Do
To crossing of Little Horn river.....	W. NW.....	4.8	715.9	Cross 2 small streams between.
To crossing of branch of Little Horn river....	NW.....	8.2	724.1	Cross small stream between; camp.
To crossing of branch of Big Horn river.....	NW.....	11.3	735.4	Cross 3 small streams between.
Do.....do.....	N. NW.....	6.9	743.2	Camp.
To crossing of Big Horn river.....	N. NE.....	6.8	749.1	Cross 2 small streams between.
To crossing of branch of Big Horn river.....	N. NW.....	19.1	768.2	Camp.
To crossing of Pryor's Fork of Yellowstone..	N. NW.....	19.5	787.7	Do.
To Yellowstone river.....	W. SW.....	10.9	798.6	Do.
Up the Yellowstone river.....	W. SW.....	17.6	816.2	Do.
To crossing of Clark's Fork of Yellowstone..	S. SW.....	3.5	819.7	
To crossing of Rocky Fork of Yellowstone..	S. SW.....	17.9	837.6	Do.
To 2d crossing of Rocky Fork of Yellowstone..	SW.....	5.2	842.8	
To crossing of Berdan's Fork of Yellowstone..	W.....	6.3	849.1	Do.
To crossing of East Fork of Rosebud river...	W. SW.....	14.1	863.2	
To crossing of Middle Fork of Rosebud river..	W.....	1.3	864.5	Do.
To crossing of West Fork of Rosebud river...	W.....	8.1	872.6	Cross 2 creeks between.
To camp on prairie.....	NW.....	11.1	883.7	Camp.
To Yellowstone river.....	NW.....	17.6	901.3	Do.
To crossing of Little Rocky creek.....	SW.....	5.4	906.7	
Up the Yellowstone river.....	SW.....	11.5	918.2	Do.
To Yellowstone crossing.....	SW.....	.9	919.1	
To Hot creek.....	SW.....	2.4	921.5	
To crossing of "25-yard" creek.....	W. SW.....	16.3	937.8	Do.
To crossing of Canyon creek.....	S.....	10.8	948.6	Do.
To crossing of summit of range.....	W. SW.....	10.2	958.8	
To crossing of Summit creek.....	SW.....	2.9	961.7	Do.
To crossing of East Gallatin creek.....	W.....	7.1	968.8	
To crossing of Boseman creek.....	W. SW.....	3.1	971.9	
To crossing of branch of Gallatin river.....	W. SW.....	6.4	978.3	Do.
To crossing of Gallatin river.....	SW.....	2	980.3	
To crossing of branch of Madison river.....	W.....	12.3	992.6	Do.
To crossing of Madison river.....	W.....	5.8	998.4	
To crossing of branch of Madison river.....	S. SW.....	10.2	1,008.6	Do.
To crossing summit of range.....	SW.....	5	1,013.6	
To crossing of Meadow creek.....	S.....	5.4	1,019.0	Do.
To crossing of Small creek.....	S.....	8.7	1,027.7	
To camp at foot of range.....	S.....	3.7	1,031.4	Do.
Virginia City.....	W. SW.....	8.3	1,039.7	Do.

Total distance to Virginia City, odometer measurement, is 1,039 and 7-10 miles.

LEWIS H. SMITH.

APPENDIX B.

Dr. Tingley's report.

SIR: In compliance with your request, that a report be made of the cases requiring medical treatment that came under my care in your wagon road expedition, I submit the following: The expedition which left the Niobrara on the 13th of June consisted of about sixty-five workmen and emigrants, escorted by two companies of the 5th United States volunteer infantry, the latter being under charge of Assistant Surgeon Smith, of that regiment. At about the time the expedition started one of the men was taken sick of measles, and notwithstanding the unfavorable condition in which he was placed, the disease ran its usual course and terminated in a complete recovery. On the first of September, in a fight with Indians on the north branch of Tongue river, James Dillelend was mortally wounded; the ball entered from behind, about two inches to the left of the last lumbar vertebræ, and came out in front about two inches below the umbilicus; he died on the following day, having survived the wound about twenty-four hours.

About the same time E. G. Merrill, who formerly resided near Cedar Falls, Iowa, was shot. The ball entered the left side, near the anterior extremity of the eighth rib, and lodged beneath the skin at a point nearly opposite, on the right side. The ball passed through sufficiently deep to wound both the stomach and liver, and the patient died in a few hours from internal hemorrhage; while lying at this camp, a soldier, by the name of Hayes, belonging to the 6th Michigan cavalry, was taken sick of typhoid pneumonia, and died on the 13th of September. This was the only death from disease that occurred among those connected with the expedition.

There were among the escort some old and very obstinate cases of chronic diarrhœa, which were under my charge while they remained with us.

The escort that reached us on the 13th of September brought to me two cases of chronic pulmonary disease, and one of intermittent fever, which had been much aggravated by their exposure to the cold rain a few days preceding.

There was also among them an Indian, whose forearm had been badly lacerated in a combat with a bear. All of these cases were doing well when the escort left us, a few days afterward, on the Big Horn. The following list will include all the more important cases:

Measles, 1; syphilis, 2; bilious fever, 1; intermittent fever, 1; typhoid pneumonia, 1; chronic bronchitis, 2; ophthalmia, 3; tonsillitis, 3; diarrhœa, 2.

Diarrhœa, was very common during the whole trip, but in only two or three cases did it amount to anything serious.

There was also in many cases a tendency to scorbutic disease, shown chiefly by soreness of the mouth, with bleeding and spongy gums. All of these cases, however, yielded readily to treatment, and no well-developed case of scurvy occurred.

Cases of poisoning from wild ivy were common during the early part of the trip.

Yours, respectfully,

D. W. TINGLEY, M. D.

Colonel J. A. SAWYERS.